11. Luke

Program Name: Luke.java **Input File: luke.dat**

Your friend Luke has begun working as a plumber. He needs you to write a program to determine the maximum water flow between two points in a given network of pipes, while respecting the maximum capacity of each pipe. Each pipe will connect between two "nodes" in the network, and will have a capacity associated with it denoting the maximum amount of water that can flow through the given pipe at a time.

Input: The input will begin with two space-separated integers, `n` (`0 < n <= 1000`) and `m` (`0 < m <= 1000`), denoting the number of pipes in the network, and the number of test cases to follow, respectively. Each of the following `n` lines will contain a pipe, with each pipe will be denoted by two space-separated characters, `a` and `b`, denoting the two nodes connected by this pipe (from `a` to `b`, not the other way around), followed by an integer denoting the capacity of the pipe. The next `m` lines will contain 2 characters, separated by a space, denoting the two nodes you need to find the maximum flow between. Note: the maximum flow will never exceed 100.

Output: For each test case, output the integer value denoting the maximum flow between the two given nodes.

Sample input:

```
10 2
A B 16
A C 13
B C 10
B D 12
C B 4
C E 14
D C 9
D F 20
E D 7
E F 4
A F
B E
```

Sample output:

```
23
14
```